BIOLOGICAL EVALUATION AND ASSESSMENT
FOR
R5 FOREST SERVICE SENSITIVE AND FEDERALLY LISTED PLANT SPECIES

EILER FIRE SALVAGE AND RESTORATION PROJECT

HAT CREEK RANGER DISTRICT
LASSEN NATIONAL FOREST

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I. INTRODUCTION

The purpose of this Biological Evaluation / Biological Assessment (BE/BA) is to review the potential effects of the proposed Eiler Fire Salvage and Restoration Project on federally listed Threatened or Endangered species and Forest Service Region 5 Sensitive (TES) plant species. Specifically, the BE/BA determines whether the proposed action would result in a trend toward any Sensitive plant species becoming federally listed as Threatened or Endangered under the Endangered Species Act (1973, as amended). It also documents anticipated effects of the project on Threatened and Endangered plants and determines whether consultation with the U.S. Fish and Wildlife Service is required for this project. Appendix A contains the complete list of plant species considered, determinations, and rationales. This BE/BA follows standards established in Forest Service Manual and Handbook direction (FSM 2670.3, 2671.2 & 2672.42, and R-5 FSH 2609.25) for Threatened, Endangered, and Sensitive (TES) species, and follows direction contained in the Lassen LRMP (1993) as amended by the Sierra Nevada Forest Plan Amendment (SNFPA) Record of Decision (ROD) (USDA FS 2004).

The Forest Service is proposing to take management action to respond to conditions created by the Eiler Fire, which burned approximately 14,926 acres of National Forest System (NFS) lands on the Hat Creek Ranger District of the Lassen National Forest (LNF) during July through October 2014. Objectives for responding to the effects of the Eiler Fire include reducing safety hazards along roads and trails and at trailheads and recreation sites, as well as in the treatment areas, recovering the value of fire-killed trees, reducing the danger and difficulty of suppressing future wildfires, and re-establishing forested conditions and habitats in burned forest stands.

This Biological Evaluation documents potential effects from project activities to *Collomia larsenii* (talus collomia) and *Pinus albicaulis* (whitebark pine), both Forest Service Region 5 Sensitive plant species. No other currently listed Forest Service Sensitive plant species are known to occur or have potential habitat within the project area (Appendix A).

II. CONSULTATION

The most current list of federally listed Threatened and Endangered plant species that may be present on the Lassen National Forest (LNF) was obtained from the Sacramento Field Office of the US Department of the Interior, Fish and Wildlife Service (USDI FWS) on March 11, 2015. *Orcuttia tenuis* and *Tuctoria greenei* are the only currently listed species whose known range includes the Lassen National Forest (USDI FWS 2015). Butte County meadowfoam (*Limnanthes floccosa* ssp. *californica*) is also listed as potentially occurring on the Lassen National Forest in Butte County (USDI FWS 2015), although it has not been found on the forest and does not have designated critical habitat on the forest (USDI FWS 2003, USDA FS 2015a). *Orcuttia tenuis* and *Tuctoria greenei* have approximately 25,000 acres of designated critical habitat on or adjacent to the Lassen National Forest (USDI FWS 2003). Neither of these species is known to occur within the Eiler Project area, and potential habitat for these species does not occur within the project area. Neither consultation with the USDI FWS nor a Biological Assessment of project effects on these species is therefore required. *Pinus albicaulis* (whitebark pine) is a Candidate species for listing by the USDI FWS, who currently considers its listing as warranted, but precluded by higher priority actions (USDI FWS 2015). This

species is known to occur within the project area, however because of its Candidate status, consultation is not required. Effects to *Pinus albicaulis* will be documented within this Biological Evaluation.

III. CURRENT MANAGEMENT DIRECTION

Forest Service Region 5 Sensitive (Sensitive) plant species, identified by the Regional Forester, are species "for which population viability is a concern, as evidenced by significant current or predicted downward trends in 1) population numbers or density and/or 2) habitat capability that would reduce a species' existing distribution" (FSM 2670.5). Forest Service management practices should "avoid or minimize impacts" on Sensitive species to ensure they "do not become Threatened or Endangered species because of Forest Service actions" and to "maintain viable populations of all native species throughout their geographic range on National Forest System lands" (FSM 2670.22 and 2670.32). Project effects on TES species will be disclosed in a Biological Evaluation (FSM 2670.32).

A. LAND AND RESOURCES MANAGEMENT PLAN (LRMP, USDA FS 1993)

The Eiler Project is located in management areas 04 (Hat Creek), 09 (Logan), and 15 (Thousand Lakes) of the Lassen National Forest (USDA FS 1993). The LNF LRMP management direction for Sensitive Plants includes the following goals, standards, and guides (LRMP pp 4-26 and 4-27):

a. Maintain habitat and viable populations to contribute to eventual de-listing of Sensitive plants that are found on the Forest.
   (1) Identify, preserve, or enhance Sensitive plant populations.
   (2) Restrict vegetative or soil disturbance in areas occupied by Sensitive plants, unless manipulation is need to perpetuate the species.
   (3) Within the planning period, develop Species Management Guides for Sensitive plants that identify population goals and compatible management activities.

b. Manage Sensitive plants to insure that species do not become Threatened or Endangered because of Forest Service actions.
   (1) Evaluate all proposed projects for potential Sensitive plant habitat. Conduct surveys at the correct time of year for species identification if potential habitat exists in a project area.
   (2) If Sensitive plants are found in a proposed project, modify the project or take mitigative action as necessary to protect the habitat.

c. Survey for possible talus collomia (*Collomia larsenii*) on the higher peaks (Thousand Lakes management area)

B. SNFPA DIRECTION (USDA FS 2004):

a. Standard and Guideline #125: Conduct field surveys for Threatened, Endangered, Proposed and Sensitive (TESP) plant species early enough in the project planning process that the project can be designed to conserve or enhance TESP plants and their habitat. Conduct surveys according to procedures outlined in the Forest Service Handbook (FSH 2609.25.11). If additional field surveys are to be conducted as part of project implementation, surveys results must be documented in the project file (USDA FS 2004, ROD Errata. p. 66).

C. CONSERVATION STRATEGIES AND ASSESSMENTS:

No Species Management Guides, Conservation Strategies, or Conservation Assessments have been completed for *Collomia larsenii* or *Pinus albicaulis.* No specific population goals or habitat capability models have been developed for these species.

D. INTERIM MANAGEMENT PRESCRIPTIONS:

Management prescriptions for Sensitive plants on the Lassen National Forest have been developed and were signed by the Forest Supervisor, February 8, 2001 (USDA FS 2001). These prescriptions provide management recommendations that line officers should consider in all land management decisions until botanical investigations and conservation strategies are completed for each species. There are no interim management prescriptions for *Collomia larsenii* or *Pinus albicaulis* because these species were not on the Region 5 Sensitive Species list in 2001.

IV. DESCRIPTION OF ALTERNATIVE 1

A. PROJECT AREA

The Eiler Project is located on 33,162 acres approximately five miles southeast of Burney California, west of State Highway 89, east of Burney Mountain, south of Brown's Butte, and north of the Thousand Lakes Wilderness. Legal locations for the Eiler Project include portions of Township (T) 33 North (N), Range (R) 3 East (E), Sections 1 and 2; R4E, Sections 16-18; T34N, R3E, Sections 10, 11, 13-15, 22-24, 26, 34-36; R4E, Sections 4, 5, 7-10, 15, 17-23, 26-28, 30-32, 35; and T35N, R4E, Section 32, in Shasta County, California. There are approximately 18,080 acres of privately owned land, and 156 acres of other federally owned land within the Project Area.

B. ALTERNATIVE 1 (PROPOSED ACTION) DESCRIPTION

The proposed action was developed to accomplish the purpose and need for the Eiler Project by evaluating existing vegetation conditions, burn patterns and intensities, and land allocations within the analysis area.

Table 1. Proposed treatment categories and estimated acres in the Eiler Project

Proposed Treatment	**Treatment Acres**	**Reforestation Acres**			
		Conventional	Cluster	Founder	Natural Regen
Roadside Hazard Trees	1,174	580	228	68	297
Area Salvage – Ground Based	2,567	1,357	1,119	27	65
Area Salvage – Helicopter Based	481	33	47	402	0
Area Fuels - Mechanical	517	250	39	7	221

Proposed Treatment	Treatment Acres	Reforestation Acres			
		Conventional	Cluster	Founder	Natural Regen
Area Fuels - Hand	3,602	114	822	536	2,129
Baker Cypress Treatment	361	0	0	16	345
Reforestation Only		0	0	0	815
Total Acres	8,702	2,334	2,255	1,056	3,872
Deferred Treatment					
Natural Recovery	5,384				
Roadside Hazard Trees	34 miles				
Trailside Hazard Trees	2 miles				

Note: These acreages have been adjusted during analysis and implementation due to reductions for wildlife habitat, RCAs, archeological sites, stand deterioration, etc.

Hazard Tree Removal

The LNF proposes to fell and remove or fell and leave in place fire-affected hazard trees posing critical threats to safety along 34 miles of maintenance level 2 (ML2) and higher roads, and along two miles of trail within the Eiler Fire perimeter. Hazard tree marking guidelines would be based upon the fire-injured tree marking guidelines at the 0.6 probability of mortality level (Pm=0.6) and hazard tree marking guidelines developed by Region 5 Forest Health Protection. The guideline criteria for delayed, fire-related conifer tree mortality are based on percent crown length killed. The objectives of these guidelines are to: (1) remove those trees that are dead or have a high probability of mortality due to fire-injury or have structural defects that indicate high failure potential to abate potential hazards to visitors and improve safety and access within the Eiler Fire area; and (2) retain those trees that would likely survive to maintain visual quality, wildlife habitat, and recreational values. This balance aims to retain healthy forested conditions while providing for safety and access to the area. Hazard trees are usually within one and a half tree lengths away from the road.

Merchantable trees would be removed using area salvage. Sub-merchantable trees and non-merchantable hazard trees would be felled and left in place, or piled and the piles burned, or broadcast burned depending upon the amount of surface fuel loading present.

Hazard trees would be felled and left in the Thousand Lakes Wilderness along trails and adjacent to campsites. Hazard trees would also be felled and left in place along the portion of the 33N06Y road that is in the IRA just north of the Thousand Lakes Wilderness. No other actions will take place in the wilderness and IRAs.

No snag retention is planned in these areas. Reforestation strategies in the Hazard Tree units would be the same as adjacent stands.

Area Salvage Harvesting

The Forest Service is proposing to salvage harvest fire-killed and fire-injured trees within the perimeter of the Eiler Fire. Merchantable trees would be removed as sawlogs if operations occur in a timely manner before the wood deteriorates. Non-merchantable trees of smaller diameters would be removed as biomass, masticated, felled and lopped, machine or hand piled and burned, and/or broadcast burned to meet desired fuels conditions.

Fire salvage marking guidelines are based upon the fire-injured tree marking guidelines (Report #RO-011-01, Smith and Cluck, May 2011) developed by Region 5 Forest Health Protection at the 0.7 probability of mortality level (Pm = 0.7). The guideline criteria for delayed conifer tree mortality are based on percent crown length killed. The objectives of these guidelines are to: (1) remove those trees that are dead or have a high probability of mortality due to fire-injury; and (2) retain those trees that would likely survive to maintain wildlife habitat and desired forest cover.

The salvage harvest operations would utilize ground-based, mechanical harvesting to remove fire-killed and fire-injured trees from treatment areas on slopes 35 percent or less. On slopes greater than 35 percent, hand-felling and yarding by helicopter would be used to salvage harvest fire-killed and fire-injured trees from treatment areas. Area salvage harvesting would occur on approximately 3,048 acres. Natural and activity-generated fuels would be broadcast burned or piled mechanically or by hand, and piles burned. The number of acres treated by broadcast burning or pile burning is dependent on the amount of biomass removed from within the mechanical or hand treatment units. If more biomass is removed, the number of broadcast or pile burning acres would most likely decrease. The maximum for burning is used in this proposal.

With the proposed area salvage activities, approximately 125 acres would be treated within RCAs adjacent to stream channels and seasonal wetlands. Approximately 110 acres would be treated using ground-based mechanical equipment. In the remaining acres within RCAs proposed for area salvage, harvest activities would consist of hand-felling and helicopter yarding.

Within tractor units, snag retention leave islands would be generally two to five acres in size, and would comprise approximately 25 percent of the acres within each unit. Leave patches would be distributed across the unit to maintain diversity. While rocky areas may represent a small proportion of such patches, the majority would be in good growing sites so that the patches would contain an abundant understory in the future. Snag clump locations would not occur within 150 feet of aspen and cottonwood communties on the east, south, and west side stand or 100 feet on the north side to maximize light to the stand and allow for expansion.

Within the helicopter units, approximately 100 square feet of basal area per acre of snags would be left to maintain black-backed woodpecker habitat ranging from 10 inches diameter at breast height (DBH) to an upper diameter that will vary by unit. Snags deemed as safety hazards during operations will be felled and left on site.

Snag retention would differ in the RCA land allocation to provide for future woody debris recruitment that would provide habitat structure and hydrologic function such as sediment trapping. The amount and distribution of standing trees retained would represent the range of natural variability of pre-fire suppression conditions. Within wet and dry meadows and intermittent stream RCAs, a minimum of one to two snags greater than 15 inches in diameter would be retained per 100 feet.

Area Fuel Treatments

In areas that were deforested but the size of the remaining timber is sub-merchantable, the Forest Service is proposing to treat fire-killed and fire-injured trees. Non-merchantable trees of smaller diameters would be removed as biomass, masticated, felled and lopped, machine or hand piled and burned, or broadcast burned. Trees designated for removal and snag retention would use the same guidelines as discussed above under Area Salvage.

Snag retention leaves islands would use guidelines as those discussed above for tractor area salvage units.

Mechanical

The fuel treatment operations could utilize ground-based, mechanical equipment to remove or arrange fire-killed and fire-injured trees from treatment areas on slopes 35 percent or less. Mechanical area fuels treatments would occur on approximately 517 acres. Activity-generated fuels would be broadcast burned or piled mechanically or by hand, and piles burned.

Hand

Hand felling would be used on slopes greater than 35 percent, in areas inaccessible to mechanical equipment, and in areas where the biomass is not removed. Hand area fuels treatments would occur on approximately 3,602 acres. Natural and activity-generated fuels would be broadcast burned or piled mechanically or by hand, and piles burned.

The number of acres treated by broadcast burning or pile burning is dependent on the amount of biomass removed from within the mechanical or hand treatment units. If more biomass is removed, the number of broadcast or pile burning acres would most likely decrease. The maximum for burning is used in this proposal.

Baker Cypress

Fuels treatments proposed in Baker cypress stands depend upon cypress density. On 200 acres where cypress occurs as isolated trees or small stands, standing fuels would be mechanically piled and burned. On 150 acres where pre-fire densities of cypress were high, and natural regeneration of cypress trees is expected to be high, hand-thinning treatments would occur only in areas where impacts to Baker cypress seedlings could be avoided. On 10 acres within the Eiler Gulch area where Baker cypress is scattered along the riparian corridor, hand thinning and pile burning activities are proposed. No additional site preparation would occur, although windrow spreading may occur within Baker cypress treatment units where windrows are not occupied by Baker cypress.

The remainder of the cypress occurs within hazard tree units or salvage units where impacts to the cypress would be minimized through project design features. Broadcast burning activities are not proposed within Baker cypress occurrences.

Reforestation

Reforestation is proposed on approximately 5,645 acres within the project area in sites prepared by salvage harvest and fuels treatment. In addition, sprouting shrubs and vegetation may need to be treated adjacent to planted trees to reduce competition for site resources in order to assure establishment. This may be done through manual or mechanical cutting methods such as grubbing, mastication, or the use of brush cutters. Soil windrows within burned areas would be spread out using heavy mechanical equipment. An effort will be made to spread the soil as evenly as practicable. All site preparation would occur prior to planting. Reforestation would typically need to occur within two years to increase the probability of survival of the planted trees with the competing brush.

Tree planting strategies would be implemented to comply with Region 5 Stocking Guidelines over time. These guidelines define future minimum and recommended stocking levels by forest type and site class, ranging from 75 to 300 trees per acre. Lower quality sites would have lower stocking levels than higher quality sites, contributing to a heterogeneous forest structure across the landscape. Planted tree species would be appropriate for the site and would include a mixture of Jeffrey, ponderosa, western white, sugar pine, Douglas-fir, or incense-cedar. Red fir would be planted if a seed source is not present. Only native tree species grown from locally collected seed sources would be planted.

Four planting strategies are proposed for reforestation: conventional planting, cluster planting, founder stands, and natural regeneration (see Silviculture Report for description of strategies). Planting strategies would be utilized to assist in creating forest heterogeneity at different scales to produce a more disturbance-resilient landscape and enhance ecological function in the future. Topography, slope position, aspect, slope steepness, and soil productivity would be taken into account to create different forest structures on the landscape that mimic those created by an active fire regime. For example in steeper high elevation areas, density and canopy cover would be highest in valley bottoms, decreasing over the midslope and become lowest near and on ridgetops. In lower elevation broad valley bottoms, densities and canopy cover would be lowest near the bottoms and increase with elevation. Density and canopy cover along the hill slope would be higher on northeast aspects compared to southwest and vary with slope becoming more open as slopes steepen. This strategy would not only create heterogeneity to increase resiliency but would also create habitat for species that prefer denser canopy mature forest structures, such as northern goshawks. No reforestation would occur in snag retention leave islands.

Spacing for reforestation strategies were developed for these areas to encourage hardwoods and enhance meadow and riparian function. Hardwood trees would be encouraged and promoted where they exist in plantations. Planting densities would generally be lower and trees widely spaced around California black oak. Conifers would not be planted within 20 feet of live black oak tree crowns, including sprouts greater than three feet tall.

Reforestation of conifers would not occur within 150 feet of aspen and cottonwood communties on the east, south, and west side stand or 100 feet on the north side to maximize light to the stand and allow for expansion. Where browsing inhibits recruitment of regenerating aspen and cottenwoods, fencing would be implemented to protect regeneration until suckers and sprouts exceed the browse line.

Reforestation planting strategies would differ as well with no reforestation occurring within 50 feet of the meadow edge. From 50 feet of the meadow edge and out, planting density would increase using the planting stategy and spacing based on the surrounding forest stand condition. Along stream channels and seasonal wetlands with existing riparian communities (e.g. willow, alder, aspen, sedges, rushes, etc.), reforestion of conifer species would not occur within 20 feet of the riparian plant community.

Where Baker cypress is widely scattered, reforestation with Baker cypress in founder stands would occur on up to 16 acres. Reforestation would not occur where pre-fire cypress distribution occurred at high densities and natural regeneration of cypress trees is expected to be high. No additional release activities would occur.

Forest Service personnel would visit riparian areas within the Eiler Fire perimeter during the growing season of 2015 to determine the amount and effectiveness of natural regeneration. If vegetation regrowth does not appear to be sufficient, then willow, aspen, sedges, and/or other appropriate riparian species would be hand planted as a follow-up treatment.

First- and third-year survival examinations on all planted units would occur. Planted units would be assessed for competing vegetation and the need for follow-up treatment to ensure survival and stocking are met. The proposed action includes at least one release treatment using manual or mechanical methods such as hand grubbing, mastication, or brush cutting to control competing vegetation within one to three years and a second treatment conducted within two to five years of planting. Animal control actions such as protective barriers or trapping may be used if warranted. Sites planted with trees should be certified of establishment five years after planting.

Transportation System

Where possible, the existing forest transportation system would be used to provide access to treatment units. Road maintenance, including surface protection and erosion control, would be performed on portions of the system as needed for project implementation. A dust abatement plan would be included to control wind-caused erosion from road use. National Forest System roads and non-paved County roads used for haul would receive pre-, during-, and post-haul maintenance.

Approximately 2.4 miles of existing non-system roads within the project area would be needed for project implementation, including salvage and fuels treatments, reforestation, and maintenance, due to the changed condition caused by the fire. These non-system roads would be added to the Forest transportation system as ML2 roads. Approximately one mile of new construction would occur to implement proposed actions. These roads would also be added to the Forest transportation system as maintenance level 1 (ML1) roads. Approximately one mile of temporary roads may be constructed to access proposed treatment areas. Following project implementation, these temporary roads would be decommissioned.

All water sources proposed for use in this project for dust abatement would be brought up to best management practice (BMP) standards, if they currently do not meet those standards. Water sources proposed for use in implementing this project include:

- Bidwell Pond (T34N R4E, S ½ Sec. 1) and
- Boundary Camp (T35N R4E SW¼ Sec. 33).

C. ALTERNATIVE 2 (NO ACTION) DESCRIPTION

Under the No Action alternative, none of the activities proposed under Alternative 1 would be implemented. Hazard tree felling could occur along roads currently open to the public, trails, and developed recreation sites. These hazard trees could be felled and left in place as part of road maintenance as per LRMP direction. The No Action alternative would not preclude activities already approved in this area or activities planned as separate projects. No fuels treatments, site preparation, or reforestation would occur.

D. ALTERNATIVE 3 (ROADSIDE HAZARD ONLY) DESCRIPTION

Under Alternative 3, commercial sized hazards would be felled and removed along ML2 and higher roads. Sub-merchantable hazards would be felled and left in place or piled and burned. No other site preparation or reforestation would occur along these roads. No other management activities (besides those previously authorized) would occur. The total footprint of treatments on National Forest lands under Alternative 3 would be approximately 1,095 acres. Existing roads used under this alternative would be repaired and maintained.

E. INTEGRATED DESIGN FEATURES (IDFS)

The following are resource protection measures relevant to Sensitive plant species that are incorporated into Alternative 1 and Alternative 3 of the Eiler Project:

Table 2. Integrated Design Features for Action Alternatives that are relevant to Botanical Resources

IDF	Description	Alternative	
Threatened, Endangered, and Sensitive (TES) and Special Interest Plant Species			
2	All ground-disturbing activities would be excluded from occurrences of *Pinus albicaulis* (whitebark pine). Locations would be displayed as control areas on all contract maps.	x	x
3	Mechanical timber harvest activities, mechanical fuels treatment activities, tree planting activities, and site preparation and release activities would be excluded from occurrences of all TES plant species, from occurrences of the special interest plant species *Penstemon heterodoxus* var. *shastensis* (Shasta beardtongue) and *Cardamine bellidifolia* var. *pachyphylla* (alpine bittercress), and from within 50 feet of trees or seedlings of *Hesperocyparis bakeri* (Baker cypress) within salvage, fuels, and Baker cypress treatment units.	x	

IDF	Description	Alternative	
4	Hand-thinning activities would be permitted within occurrences of *Penstemon heterodoxus* var. *shastensis*; however, trees would be directionally felled away from plants where practicable. Hand-thinning activities would be permitted within occurrences of *Hesperocyparis bakeri* only if cypress seedlings could be avoided through directional felling within salvage, fuels, and Baker cypress treatment units.	x	
5	Hand and machine piles and landings would be excluded from known occurrences of any TES plant species, from the special interest plant species *Cardamine bellidifolia* var. *pachyphylla*, *Hesperocyparis bakeri*, *Penstemon heterodoxus* var. *shastensis*, and *Thermopsis californica* var. *argentata* (silvery false lupine), and from the Burney grassland study area in all units.	x	x
6	Within hazard tree units, trees would be directionally felled away from trees or seedlings of *Hesperocyparis bakeri*, from the Burney grassland study area, and from occurrences of *Cardamine bellidifolia* var. *pachyphylla* where practicable. Where trees of *Hesperocyparis bakeri* are felled as hazard trees, they would be left in place. Seedlings of *Hesperocyparis bakeri* would be avoided where practicable.	x	x
7	Broadcast burning activities would be excluded from occurrences of *Hesperocyparis bakeri*.	x	
8	Windrow spreading activities would be excluded from within 50 feet of occurrences of *Hesperocyparis bakeri*.	x	
9	New occurrences of TES and Special Interest plant species discovered before or during ground-disturbing activities would be protected through flag-and-avoid methods (with the exception of *Astragalus inversus*, for which no special protections would be required).	x	x
Invasive Plants			
10	Staging of equipment would be done in weed-free areas.	x	x
11	Known noxious weed infestations would be identified, flagged where possible, and mapped for this project. Locations would be displayed on contract maps. Identified noxious weed sites within or adjacent to the project area containing isolated patches with small plant numbers would be treated (hand pulled or dug) by forest botany staff prior to project implementation. Any larger or unpullable infestations would be avoided by harvesting equipment, or equipment used would be washed on site before leaving the infested area and entering un-infested areas to prevent spreading weeds within the project area.	x	x

IDF	Description	Alternative	
12	New small infestations identified during project implementation would be evaluated and treated according to the species present and project constraints and avoided by project activities. If larger infestations are identified during implementation, they would be isolated and avoided by equipment, or equipment used would be washed on site before leaving the infested area and entering un-infested areas.	x	x
13	Mechanical equipment would be excluded from known infestations of yellow starthistle (LNF #97) and medusahead (LNF #79) on Brown Butte.	x	x
14	Post-project monitoring for implementation and effectiveness of weed treatments and control of new infestations would be conducted as soon as possible and for a period of multiple years after completion of the project.	x	x
15	If project implementation calls for mulches or fill, they would be certified weed-free. Seed mixes used for re-vegetation of disturbed sites would consist of locally-adapted native plant materials to the extent practicable.	x	x
16	As part of pre-haul maintenance, Road 34N76 would be bladed or scraped prior to project implementation to ensure that yellow starthistle along this road is not moved into the project area.	x	x

V. EXISTING ENVIRONMENT

A. VEGETATION

The Eiler Project area ranges in elevation from 3,240 feet to 7,840 feet. Prior to the Eiler Fire, vegetation within the project area included mixed conifer forest, red and white fir forest, pine plantations, lodgepole pine stands, whitebark pine stands, Baker cypress stands, aspen stands, white oak and black oak woodlands with gray pine, montane chaparral, wet and mesic meadows, and grasslands. Approximately 69 percent of the project area burned at very high severity in the Eiler Fire, 6 percent burned at moderately high severity, and 25 percent burned at low to moderate severity (Eiler Fire Salvage and Restoration Project Report for Fire and Fuels, Eiler Project Record). As a result, while 12 percent of the project area had a barren cover type prior to the Eiler Fire, 74 percent was considered barren post-fire, with the largest losses of vegetative cover seen in ponderosa pine forest (including plantations), Sierran mixed conifer forest, and chaparral (Silviculture Report for the Eiler Fire Salvage and Restoration Project, Eiler Project Record).

Invasive plants currently known in the project area include 14 infestations (see Eiler Project Invasive Plant Species Risk Assessment, Eiler Project Record). Most of these are scattered along the Highway 89 corridor and are largely outside of proposed treatment areas. These include *Cardaria* sp. (whitetop, 1 occurrence), *Centaurea solstitialis* (yellow starthistle, 1 occurrence), *Centaurea squarrosa* (squarrosa knapweed, 3 occurrences), *Centaurea stoebe* ssp. *micranthos* (spotted knapweed, 1 occurrence), *Hypericum perforatum* (Klamathweed, 3 occurrences), and *Isatis tinctoria* (dyer's woad, 1 occurrence). In addition, there

are large infestations (>200 acres) of *Centaurea solstitialis* (yellow starthistle) and *Elymus caput-medusae* (medusahead) on Brown Butte and access roads from Hat Creek Valley.

B. SURVEYS

Botanical surveys were conducted within the Eiler Project area in 2004, 2009, 2011-13, and 2014 in conjunction with the Eiler Project and other Lassen National Forest projects (Table 3). Most were floristic in nature, but some surveys targeted the Lassen NF Special Interest species *Hesperocyparis bakeri*, Sensitive plant species, or invasive plant species as noted below. Floristic surveys were conducted in general accordance with the California Native Plant Society Botanical Survey Guidelines (CNPS 2001). Survey routes and dates can be found within the NRIS TESP-Invasives geodatabase (USDA FS 2015a).

Table 3. Surveys in the Eiler Project area

Project	Survey Date	Survey Type
Roadside Hazard Tree Salvage	2004	floristic
Backbone	2004	floristic
OHV Route Designation	Oct. 2009	directed (invasive plants)
Whittington	June 2011	directed (*Hesperocyparis bakeri*)
Thousand Lakes Trails	Sept 2012	floristic
Burney Mountain Whitebark Pine	Aug 2013	directed (TES species)
Eiler	Nov 2014	directed (*Hesperocyparis bakeri*)

Source: USDA FS 2015a

C. EXISTING CONDITIONS

Currently, ***Pinus albicaulis*** (whitebark pine) is the only Region 5 Sensitive plant species found within the Eiler Project area. There is one occurrence of this species (PIAL-002) within the project area, located near the summit of Burney Mountain. The occurrence totals 7.1 acres, 1.7 acres of which are within the project area. Less than 0.01 acres are within a unit where hand fuel treatments and reforestation treatments (founder stand) are proposed. There are 0.25 acres of this occurrence within a danger tree unit that has been delineated around Road 34N23. Although portions of the occurrence are within treatment units, they are in areas that either did not burn or burned at very low severity in the Eiler Fire.

Potential habitat for ***Collomia larsenii*** (talus collomia) occurs on the high-elevation dacite lava flows of Burney Mountain. Approximately four acres of potential habitat occurs within a danger tree unit that has been delineated around Road 34N23, however, there are no danger trees that would be removed within the rocky, open habitat for this species. Potential habitat was surveyed in 2013 in conjunction with whitebark pine surveys, and no occurrences were found.

D. SPECIES INFORMATION

Collomia larsenii **(**talus collomia) is a low perennial in the phlox family. It has pale purplish or pink, funnel-shaped flowers and lobed leaves. It is found on volcanic talus at elevations of 7,250 to 11,500 feet (CNPS 2001) in the high Cascades of Washington, Oregon and Northern California (USDA FS 2012a). The taxon has a California Rare Plant Rank of 2.2, and it is considered fairly endangered in California but more common elsewhere (CNPS 2015). According to the California Natural Diversity Database (CNDDB), there is one California population on the Shasta-Trinity National Forest, one population on the Lassen National Forest, and one population on Lassen Peak in Lassen Volcanic National Park (CDFW 2015).

The one known occurrence of *Collomia larsenii* on the Lassen National Forest is located on Magee Peak in the Thousand Lakes Wilderness. The current long- and short-term trends are unknown, and there is no formal monitoring in place for this species.

Pinus albicaulis (whitebark pine) is a subalpine tree with pale, thin bark. Individuals may have more than one trunk and may be prostrate and shrubby where exposed to the elements. Whitebark pine generally occurs on cold and windy, subalpine sites, where it usually defines the upper treeline. The tree's needles are bundled in fives, and its cones generally remain closed but are regularly torn apart by animals. The species is distributed through the Rocky Mountains from British Columbia and Alberta to northern Wyoming and further west from the Coast Ranges of British Columbia south through the Cascades to the Sierra Nevada, and there are isolated populations in Oregon, Nevada, and the Klamath Ranges and Warner Mountains of California. In California, the trees grow at elevations between 7,000 feet and 9,000 feet in the Cascade Mountains, and between 10,000 and 12,100 feet in the Sierra Nevada mountains (USDA FS 2012b, Baldwin et al. 2012). The great majority of occurrences are on federal land (USDA FS 2012b). Although the species is rapidly declining throughout much of its range due to the combination of white pine blister rust, mountain pine beetle, and changing climate, it has not been assigned a California Rare Plant Rank, nor has it been inventoried in the California Natural Diversity Database.

In California, *Pinus albicaulis* occurs on the Eldorado, Inyo, Klamath, Lassen, Modoc, Sequoia, Shasta-Trinity, Sierra, Stanislaus, and Tahoe National Forests, and Lake Tahoe Basin Management Unit (USDA FS 2012b). The species is known to occur on the Lassen National Forest on Crater and Magee Peaks of the Thousand Lake Wilderness, and on Burney Mountain.

VI. ENVIRONMENTAL EFFECTS OF ALTERNATIVE 1 (PROPOSED ACTION)

Although potential habitat for *Collomia larsenii* occurs within the project area, there are no known occurrences of this species within the project area. There would be no direct, indirect, or cumulative effects anticipated for *Collomia larsenii* and this species is not analyzed further within the effects section.
This section will discuss the environmental effects of Alternative 1 of the Eiler Project on *Pinus albicaulis*, the only Sensitive species known to occur within the project area.

A. DIRECT EFFECTS

Direct effects involve physical damage to plants or their habitat. Area salvage activities, hand treatment activities, site preparation activities, and prescribed fire activities including pile burning and underburning all have the potential to directly affect plant species, resulting in death, altered growth, or reduced seed set through physically breaking, crushing, burning, scorching, or uprooting plants. Because ground-disturbing activities would be excluded from all occurrences of *Pinus albicaulis*, there would be no direct effects to this species from the implementation of Alternative 1 of the Eiler Project.

B. INDIRECT EFFECTS

Indirect effects are separated from an action in either time or space. These effects, which can be beneficial or detrimental to rare species, may include changes in plant community composition, changes to fire regime, or changes in invasive plant distribution and abundances as a result of project activities. Because project activities would be excluded from the occurrence of *Pinus albicaulis*, there would be no anticipated project-related indirect effects to plant community composition. Because the occurrence is largely surrounded by talus slopes and unburned mixed conifer forest, project-related salvage and fuels treatment activities adjacent to the occurrence would not be anticipated to alter the fire regime within the occurrence. There are no invasive plant species known to the vicinity of this occurrence, and therefore there would be no indirect effects from project-related changes to invasive plant distribution or spread that may affect *Pinus albicaulis*. As a result, no indirect effects to this species are anticipated from the implementation of Alternative 1.

C. CUMULATIVE EFFECTS

Because there are no anticipated direct or indirect effects to *Pinus albicaulis* from the implementation of Alternative 1, there would be no cumulative effects to this species. The implementation of Alternative 1 is not expected to affect the viability of *Pinus albicaulis* within the Eiler Project area or across the Lassen NF for at least the next 20 years.

VII. ENVIRONMENTAL EFFECTS OF ALTERNATIVE 2 (NO ACTION)

A. DIRECT EFFECTS

No direct effects to *Pinus albicaulis* would be anticipated from the implementation of Alternative 2.

B. INDIRECT EFFECTS

No indirect effects to *Pinus albicaulis* would be anticipated with the implementation of Alternative 2.

C. CUMULATIVE EFFECTS

Because there would be no direct or indirect effects to *Pinus albicaulis* from the implementation of Alternative 2, there would be no cumulative effects to this species.

VII. ENVIRONMENTAL EFFECTS OF ALTERNATIVE 3 (HAZARD TREE ONLY)

A. Direct Effects

Because hazard tree activities would occur as described for Alternative 1, direct effects to *Pinus albicaulis* would be as described for Alternative 1.

B. Indirect Effects

Because hazard tree activities would occur as described for Alternative 1, indirect effects to *Pinus albicaulis* would be as described for Alternative 1.

C. Cumulative Effects

Because there would be no anticipated direct or indirect effects to *Pinus albicaulis* from the implementation of Alternative 3, there would be no cumulative effects to this species.

VIII. DETERMINATION

It is my determination that with the incorporation of project Integrated Design Features, the implementation of Alternative 1 and Alternative 3 of the Eiler Project would have no effect to *Collomia larsenii* or *Pinus albicaulis*.

IX. COMPLIANCE WITH FOREST PLAN AND OTHER REGULATORY DIRECTION

All alternatives for the Eiler Fire Salvage and Restoration Project are consistent with the Forest Plan (USDA FS 1993) and other direction with regard to R5 Forest Service Sensitive plant species and their habitats.

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APPENDIX A
Determinations and Rationales for Federally Listed (FT/FE) and Region 5 Forest Service Sensitive (S) Plant Species
Eiler Salvage and Restoration Project

Species	Status*	Determination**	Rationale:
Limanthes floccosa ssp. *californica* (woolly meadowfoam)	FE	Not Analyzed	Low-elevation westside vernal pool habitat below 3000 ft. not present in project area.
Orcuttia tenuis (slender Orcutt grass)	FT	Not Analyzed	Vernal pool habitat from 4900-5760 ft., including designated critical habitat, not present in project area.
Tuctoria greenei (Greene's tuctoria)	FE	Not Analyzed	Vernal pool habitat from 4900-5760 ft., including designated critical habitat, not present in project area.
Astragalus pulsiferae var. *suksdorfii* (Suksdorf's milk-vetch)	S	Not Analyzed	Habitat of sandy volcanic soil on alluvial flats in sagebrush or pine forest from 4500-6500 ft. not present in project area.
Boechera constancei (Constance's rock cress)	S	Not Analyzed	Habitat of serpentine soils or rock outcrops from 3500-6750 ft. not present in project area.
Botrychium ascendens (upswept moonwort)	S	Not Analyzed	Habitat of perennially wet springs, seeps, and streambanks in mixed coniferous forests from 5200-6240 ft. not present within project area.
Botrychium crenulatum (scalloped moonwort)	S	Not Analyzed	Habitat of perennially wet springs, seeps, and streambanks in mixed coniferous forests from 5040-6000 ft. not present within project area
Botrychium lunaria (common moonwort)	S	Not Analyzed	Habitat of moist subalpine meadows, stream banks, springs or seeps from 7000-10000 ft. not present in the project area.
Botrychium minganense (Mingan moonwort)	S	Not Analyzed	Habitat of perennially wet springs, seeps, and streambanks in mixed coniferous forests from 5240-6250 ft. not present in project area.
Botrychium montanum (western goblin)	S	Not Analyzed	Habitat of perennially wet springs, seeps, and streambanks in mixed coniferous forests from 5200-6250 ft. not present in project area.
Botrychium pedunculosum (stalked moonwort)	S	Not Analyzed	Habitat of springs, seeps, or gentle, perennially wet stream banks in mixed coniferous forests at approximately 6000 ft. not present within project area.
Botrychium pinnatum (northwestern moonwort)	S	Not Analyzed	Habitat of perennially wet springs, seeps, and streambanks in mixed coniferous forests from 5200-6250 ft. not present in project area.
Bruchia bolanderi (Bolander's bruchia)	S	Not Analyzed	Habitat of bare soil along westside montane stream banks in mixed conifer forests from 3800-8200 ft. not present in the project area.
Buxbaumia viridis (green bug-on-a-stick)	S	Not Analyzed	Habitat of highly decayed logs, peaty soil or humus in westside, moist, shaded conditions not present in the project area.
Calochortus longebarbatus var. *longebarbatus* (long haired star tulip)	S	Not Analyzed	Habitat of eastside seasonally wet meadows north of Highway 299 (Hat Creek Ranger Dist.) from 4000-6300 ft. not present in project area.

Species	Status*	Determination**	Rationale:
Clarkia gracilis ssp. *albicaulis* (white-stemmed clarkia)	S	Not Analyzed	Habitat of low elevation westside foothill open areas from 500-3600 ft. not present in project area.
Clarkia mildrediae ssp. *mildrediae* (Mildred's clarkia)	S	Not Analyzed	Habitat of sandy, often granitic or disturbed soils in lower montane mixed conifer forests from 1500-5200 ft. not present in project area.
***Collomia larsenii* (talus collomia)**	**S**	**No Effect**	**High elevation volcanic talus habitat from 7250-11,500 ft. present in project area. Suitable habitat surveyed and species not found.**
Cryptantha crinita (silky cryptantha)	S	Not Analyzed	Habitat of foothill gray pine forest and blue oak woodlands below 3700 ft. near the Ishi Wilderness not present in project area.
Cypripedium fasciculatum (clustered lady's-slipper)	S	Not Analyzed	Habitat of mid- to late-seral westside mixed conifer forest not present in project area.
Cypripedium montanum (mountain lady's-slipper)	S	Not Analyzed	Habitat of moist mixed coniferous forest and riparian areas with high canopy cover from 2800-6000 ft. and north of Burney (Hat Creek RD) not present in project area.
Eremogone cliftonii (Clifton's sandwort)	S	Not Analyzed	Open habitat among mixed conifers or manzanita or in meadow, typically on granitic soil with limited organic material, at 1500-5800 ft. not present in project area.
Eriogonum prociduum (prostrate buckwheat)	S	Not Analyzed	Habitat of open, dry, rocky, volcanic soils in eastside pine forest, juniper woodlands, or low sage from 4200-8200 ft. not present in project area.
Eriogonum spectabile (Barron's buckwheat)	S	Not Analyzed	Habitat of glaciated andesite soil in open red fir/lodgepole forest from 6600-6640 ft. not present in project area.
Frangula purshiana ssp. *ultramafica* (Caribou coffeeberry)	S	Not Analyzed	Habitat of shallow, rocky ultramafic soil covered primarily with shrubs, at elevations from 2700-6330 ft. not present in project area.
Fritillaria eastwoodiae (Butte County fritillary)	S	Not Analyzed	Habitat of lower westside mixed conifer or brushy areas from 100-4000 ft. not present in project area.
Helodium blandowii (Blandow's bog moss)	S	Not Analyzed	Habitat of wet meadows, seeps or fens in westside subalpine coniferous forest or alpine lakes from 6000-8100 ft. not present in project area
Juncus leiospermus var. *leiospermus* (Red Bluff dwarf rush)	S	Not Analyzed	Habitat of lower elevation vernal pool or seasonally wet flats north of Hwy 299 and from 175-3300 ft. not present in project area.
Juncus luciensis (Santa Lucia dwarf rush)	S	Not Analyzed	Habitat of wet, sandy soils in open areas from 980-7000 ft. not present in project area.
Lewisia kelloggii ssp. *hutchisonii* (Hutchison's lewisia)	S	Not Analyzed	Habitat of ridge tops or relatively flat, open areas with bare, rocky soil at moderately high elevations from 5100-7000 ft. in Sierra Nevada not present in project area.

Species	Status*	Determination**	Rationale:
Limnanthes floccosa ssp. *bellingeriana* (Bellinger's meadowfoam)	S	Not Analyzed	Habitat of seasonally wet areas in oak or oak/juniper woodlands below 3600 ft. and north of Highway 299 not present in project area.
Lomatium roseanum (adobe parsley)	S	Not Analyzed	Habitat of shallow, rocky soil on open, wind-swept ridge tops on the Diamond Mountains from 5880-7280 ft. not present in the project area.
Meesia uliginosa (broad-nerved hump moss)	S	Not Analyzed	Species and habitat of moist logs in westside fens not present in project area.
Mimulus evanescens (ephemeral monkeyflower)	S	Not Analyzed	Habitat of seasonal lake margins, streambanks, or wet areas in eastside pine or sagebrush/juniper vegetation from 3900-5580 ft. not present in project area.
Monardella follettii (Follett's monardella)	S	Not Analyzed	Habitat of serpentine soils from 4000-6500 ft. not present in project area.
Oreostemma elatum (Plumas alpine aster)	S	Not Analyzed	Habitat of westside fens or very wet meadows from 3800-6200 ft well-surveyed and species not found. No known occurrences on forest.
Packera eurycephala var. *lewisrosei* (cut-leaved ragwort)	S	Not Analyzed	Habitat of serpentine soils in mixed coniferous forest from 4100-6240 ft. not present in project area.
Peltigera gowardii *Goward's waterfan*	S	Not Analyzed	Habitat of cool, clear, shallow, spring-fed westside perennial streams not present in project area
Penstemon personatus (closed-throated beardtongue)	S	Not Analyzed	Habitat of north-facing slopes with a substantial red fire component on the southern edge of the Almanor RD from 4000-6500 ft. not present in project area.
Penstemon sudans (Susanville beardtongue)	S	Not Analyzed	Habitat of open, often rocky, volcanic soils in juniper woodlands or yellow pine forests near Susanville from 3900-5600 ft. not present in project area.
Phacelia inundata (playa phacelia)	S	Not Analyzed	Habitat of eastside subalkaline flats from 5000-6600 ft. not present in project area.
***Pinus albicaulis* (whitebark pine)**	**S**	**No Effect**	**Habitat at treeline above 6500 ft. present in project area. Species know to occur within project area, but excluded from ground-disturbing activities.**
Poa sierrae (Sierra bluegrass)	S	Not Analyzed	Habitat of moist, shady slopes, often with mossy rocks, from 1150-5000 ft. not present in project area.
Pyrrocoma lucida (sticky goldenweed)	S	Not Analyzed	Habitat of open, vernally wet drainages, swales, or flats south of Highway 36 from 2290-6730 ft. not present in project area.
Rorippa columbiae (Columbia yellow cress)	S	Not Analyzed	Habitat of large, open, seasonally wet eastside flats (playas) from 4000-5950 ft. not present in project area.
Rupertia hallii (Hall's rupertia)	S	Not Analyzed	Habitat of lower westside mixed coniferous forest in Campbellville/ Butte Meadows/Onion Butte area below 4800 ft. (Almanor RD) not present in project area.

Species	Status*	Determination**	Rationale:
Scheuchzeria palustris (American scheuchzeria)	S	Not Analyzed	Habitat of floating sphagnum fens in cold, moderately high elevation lakes from 3000-9000 ft. not present in project area.
Sedum albomarginatum (Feather River stonecrop)	S	Not Analyzed	Habitat of serpentine or medisedimentary rock outcrops from 1500-6400 ft. not present in project area.
Silene occidentalis ssp. *longistipitata* (long-stiped campion)	S	Not Analyzed	Habitat of openings in mid-elevation, westside mixed coniferous forests from 3300-6100 ft. not present in project area.
Thelypodium howellii ssp. *howellii* (Howell's thelypody)	S	Not Analyzed	Habitat of alkaline meadows, seeps and pastures or sagebrush/rabbitbrush scrub from 4100-6700 ft. not present in project area.

*Status: FE = Federal Endangered; FT = Federal Threatened; S = Forest Service Sensitive

Determinations: **No Effect** = Project would not affect the species based upon lack of suitable habitat within the project area or exclusion from project-related activities; **May Affect Not Likely** = Project may affect individuals or habitat, but not likely to result in a trend toward federal listing or loss of viability for the species.